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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/834,432	04/13/2001	Christoph von Kopylow	GK-ZEI-3117 / 500343.2001	5907

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REED SMITH LLP
375 Park Avenue
New York, NY 10152 .

EXAMINER
JACKSON, CORNELIUS H

ART UNIT	PAPER NUMBER
2828	

DATE MAILED: 08/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/834,432	Applicant(s) KOPYLOW ET AL	
	Examiner Cornelius H. Jackson	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 March 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

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Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Acknowledgment

1. Acknowledgment is made that applicant's Amendment, filed on 25 March 2003, has been entered. Claims 1-25 were amended and claim 26 was added. Claims 1-25 is now pending in the current application.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. The claims are generally indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors. Most specifically, claims fail to show sufficient antecedent basis.

5. Claims 1-8 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are the steps done during the changing of the optical cavity length and when does a tuning occur in relation with the changing of the optical cavity length. Is the generating or deriving a tuning function for the at least one optical element done by hand with a calculator, etc.

6. Claims 9-25 rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the relationship between each and every element claimed, that is, there is not stated relationship between the laser diode with the laser crystal/actuator/etalon and the laser crystal with the actuator/etalon and the actuator with the etalon. Also, the use of the phase "followed by" is indefinite, since it is unclear how one element is being followed by the other.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-13, 20 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Sugiyama et al. (5701320). Regarding claim 1, Sugiyama et al. discloses a method for self-calibration of a tunable laser comprising changing the optical cavity length by a piezo-actuator over the total amplification bandwidth of the laser-active material, **see col. 7, lines 1-9**; recording and storing performance curves during the tuning of at least

one optical element arranged in the cavity, **see col. 4, line 20-43**; generating or deriving a tuning function for the at least one optical element from the curves by a microcontroller or computer, **see col. 6, lines 35-56 and col. 7, line 47-col. 8, line 53**; and adjusting an optimum working point for the at least one optical element for maximum suppression of side modes by a digital or analog regulator with the help of a learning curve or learning characteristic, **see col. 4, line 20-col. 13, line 29**.

Regarding claims 2-8 and 26, Sugiyama et al. disclose all the stated limitations, **see Figs. 4 and 5 and col. 4, line 20-col. 13, line 29**.

Regarding claim 9, Sugiyama et al. disclose an arrangement for the self-calibration of a tunable, diode pumped solid state laser **Fig. 1**, wherein the laser comprises: a laser diode as a pump light source followed by in-coupling optics, a laser crystal **42** followed by out-coupling optics **44** or a nonlinear, frequency-doubling crystal, wherein the outer surfaces of the laser crystal **42**, the out-coupling optics **44** and frequency-doubling crystal have a reflective coating for the laser fundamental frequency and/or for the frequency-doubled radiation and enclose the cavity between them; and further comprises: an actuator **56** for varying the cavity length for the purposes of tuning and calibrating the laser to traverse a maximum possible tuning range in a continuous manner; an etalon **32** being provided inside the cavity for changing the tuning range and for determining the output power of the laser, wherein the etalon **32** is rotatable or swivelable about an axis of rotation which extends at right angles to the optical axis of the laser or at an inclination to the latter by a small angle, **see col. 4, lines 20-67**.

Regarding claims 10-13, Sugiyama et al. disclose the etalon is transparent and is rotatable about the axis of rotation and is angularly adjustable by an angular drive **54**, and all the other stated limitations, **see col. 5, lines 8-23**.

Regarding claim 20, Sugiyama et al. disclose all the stated limitations, **see Fig. 1**.

9. Claims 1-9 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Wakata et al. (5130998). Regarding claim 1, Wakata et al. discloses a method for self-calibration of a tunable laser comprising changing the optical cavity length by a piezo-actuator over the total amplification bandwidth of the laser-active material; recording and storing performance curves during the tuning of at least one optical element arranged in the cavity; generating or deriving a tuning function for the at least one optical element from the curves by a microcontroller or computer; and adjusting an optimum working point for the at least one optical element for maximum suppression of side modes by a digital or analog regulator with the help of a learning curve or learning characteristic, **see col. 7, line 27-col. 9, line 61**.

Regarding claims 2-8 and 26, Wakata et al. disclose all the stated limitations, **see Fig. 9 and col. 7, line 1-col. 11, line 25**.

Regarding claim 9, Wakata et al. disclose an arrangement for the self-calibration of a tunable, diode pumped solid state laser **Figs. 1 and 8**, wherein the laser comprises: a laser diode **16** as a pump light source followed by in-coupling optics **17**, a laser crystal **2** followed by out-coupling optics **4** or a nonlinear, frequency-doubling crystal, wherein the outer surfaces of the laser crystal **2**, the out-coupling optics **4** and frequency-

doubling crystal have a reflective coating for the laser fundamental frequency and/or for the frequency-doubled radiation and enclose the cavity between them; and further comprises: an actuator **27** for varying the cavity length for the purposes of tuning and calibrating the laser to traverse a maximum possible tuning range in a continuous manner; an etalon **6** being provided inside the cavity for changing the tuning range and for determining the output power of the laser, wherein the etalon **32** is rotatable or swivelable about an axis of rotation which extends at right angles to the optical axis of the laser or at an inclination to the latter by a small angle, **see col. 7, line 1-col. 11, line 25**.

10. Claims 9-14, 16, 20, 23 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Zorabedian (6108355). Regarding claim 9, Zorabedian disclose an arrangement for the self-calibration of a tunable, diode pumped solid state laser **Fig. 1**, wherein the laser comprises: a laser diode as a pump light source followed by in-coupling optics, a laser crystal **102** followed by out-coupling optics **122** or a nonlinear, frequency-doubling crystal, wherein the outer surfaces of the laser crystal **102**, the out-coupling optics **122** and frequency-doubling crystal have a reflective coating for the laser fundamental frequency and/or for the frequency-doubled radiation and enclose the cavity between them; and further comprises: an actuator **56** for varying the cavity length for the purposes of tuning and calibrating the laser to traverse a maximum possible tuning range in a continuous manner; an etalon **162** being provided inside the cavity for changing the tuning range and for determining the output power of the laser, wherein the etalon **162** is rotatable or swivelable about an axis of rotation which extends at right

angles to the optical axis of the laser or at an inclination to the latter by a small angle, **see col. 3, line 11-col. 4, line 63**.

Regarding claims 10-14, 16 and 25 Zorabedian disclose the etalon is transparent and is rotatable about the axis of rotation and is angularly adjustable by an angular drive **144**, and all the other stated limitations, **see col. 4, lines 17-25**.

Regarding claim 20; Zorabedian disclose all the stated limitations, **see col. 4, lines 8-16**.

Regarding claim 23 and 24, Zorabedian disclose all the stated limitations, **see col. 4, lines 26-37 and col. 5, line 34- col. 7, line 53**.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 14-19 and 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiyama et al. (5701320). Sugiyama et al., as applied to claims 1-13, 20 and 26 above, teach all the stated limitations except for having only one coil of the stepper motor being controlled in the angular drive, modulating the field vector to prevent hystereses, operating the motor in microsteps, the angle of inclination of the etalon, etc.

Regarding claim 14, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding claims 15, 16, 18-19 and 21-25, all the stated limitations are considered as a matter of obvious design choice, **see rejections claims above**.

Regarding claim 17, it has been held "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Response to Arguments

13. Applicant's arguments with respect to claims 1-25 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yasuda et al. (4947398) teach the claimed invention.

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cornelius H. Jackson whose telephone number is (703) 306-5981. The examiner can normally be reached on 8:00 - 5:00, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7722 for regular communications and (703)308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

chj
July 27, 2003

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